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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/501,117	01/14/2005	Takeo Okabe	OGOSH-19USA	5689
270 7590 09/02/2009 HOWSON & HOWSON LLP 501 OFFICE CENTER DRIVE SUITE 210 FORT WASHINGTON, PA 19034				
EXAMINER				
IP, SIKYIN				
ART UNIT		PAPER NUMBER		
1793				
NOTIFICATION DATE		DELIVERY MODE		
09/02/2009		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docketing@howsonandhowson.com

Office Action Summary

Application No.

10/501,117

Applicant(s)

OKABE ET AL.

Examiner

Sikyin Ip

Art Unit

1793

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 5/5/09.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3, 4, 7, 8, 16-19, 23, 24, 27 and 28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3, 4, 7, 8, 16-19, 23, 24, 27 and 28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/808)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 3, 4, 7, 8, 16-19, 23-24, 27, and 28 are further rejected under 35 U.S.C. § 103 as being unpatentable over JP 06-177128 in view of USP 6451135 to Takahashi et al.

JP 06-177128 discloses the features including the claimed Al containing Cu alloy and resistivity (abstract). The Cu alloy is formed by sputtering ([0010]-[0011]). JP 06-177128 does not disclose the recited x-ray diffraction ratio and grain size. However, Takahashi discloses to control grain size (col. 2, lines 35-38), x-ray diffraction ratio (col. 2, lines 39-44), and processing steps (col. 5, Example 1) in the same field of endeavor or the analogous metallurgical art for uniformity of film thickness (col. 2, lines 25-28). Therefore, it would have been obvious to one having ordinary skill in the art of the cited references at the time the invention was made to control grain size and x-ray diffraction ratio as taught by Takahashi because the set forth benefits and function entail the motivation of one skilled in the art to make a claimed sputtering target, in the expectation that compounds similar in structure will have similar properties. In re Venner, 120 USPQ 193 (CCPA 1958), In re LaVerne, et al., 108 USPQ 335, and In re Aller, et al., 105 USPQ 233. In re Gyurik, 596 F.2d 1012, 1018, 201 USPQ 552, 557 (CCPA 1979); See In re May, 574 F.2d 1082, 1094, 197 USPQ 601, 611 (CCPA 1978) and In re Hoch, 57 CCPA 1292, 1296, 428 F.2d 1341, 1344, 166 USPQ 406, 409 (1970).

Response to Arguments

Applicant's arguments filed May 5, 2009 have been fully considered but they are not persuasive.

Applicants' argument with respect to the seed layer thickness is noted. But, it is found immaterial because first, none of instant claims recited seed layer thickness. Second, instant specification has not disclosed the importance of the seed layer

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thickness. Third, it is unclear that how the "seed layer" structure is different from "thin film wiring". Fourth, instant claims are directed to "sputtering target". The intended-use of the sputtering target as "a seed layer" in the preamble does not impart patentability to a claim to a composition substantially identical to that of the prior art. Ex Parte Head 164 USPQ 664 (POBA 1969). Reciting the contemplated end-use in a product claim directed to an old compound does not impart thereto the novelty requisite to patentability, even though the end-use is unobvious. In re Thuau 135 F2d 344, 57 USPQ 324 (CCPA 1943).

Applicants argue that the thin film thickness of JP '128 in example is about 0.7 μm . But, it is well settled that the examples of the cited reference are given by way of illustration and not by way of limitation. In re Widmer, 353 F.2d 752, 757, 147 USPQ 518, 523 (CCPA 1965), In re Boe, 148 USPQ 507 (CCPA 1966), and In re Snow, 176 USPQ 328.

~~thickness. Thus, unlike the thin film of the present invention, the sputtered film of JP '128 forms copper wiring, not a seed layer upon which copper is required to be plated via an~~

Applicants argue that "electrolytic copper plating process. ~~Accordingly, the qualities of the thin film and sputtering~~ "

But, known wave soldering of thin film wiring reads on the argued plating of seed layer.

Applicants' argument in page 4, first paragraph of instant remarks is noted. But, applicants fail to provide factual evidence with 132 declaration that the Al content of JP '128 has dropped outside the claimed range.

Applicants' argument in page 4, second paragraph of instant remarks is noted. But, it is obvious that Cu – (Al and/or Si) alloy thin film sputtering target would have higher resistivity than annealed thin film wiring (close to pure copper).

~~Still further, the technology of JP '128 is not merely different in terms of "intended use"~~
~~In comparison to the present invention, but also completely lacks a disclosure of, or importance~~

Applicants argue that " ~~of, the X-ray diffraction intensity I(111)/I(200) being 2.2 or greater~~ " In response to applicants' arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Applicants' argument in paragraph bridging pages 5-6 of instant remarks is noted. But, as are argued by applicants in instant remarks (page 4, first paragraph) and JP '128 (abstract) that the thin film wiring of JP '128 is closed to pure copper which is in the similar arts of the copper thin film taught by Takahashi. Moreover, applicants fail to provide factual evidence that the claimed Al content has significant affect on the claimed X-ray diffraction peak intensity ratio. Takahashi is merely cited to show that the claimed grain size is known for Cu sputtering target and the recited diffraction ratios is mainly from copper element.

Applicants' argument in pages 6-7 of instant remarks is noted. But, applicants fail to show the claimed X-ray diffraction intensities ratio is significantly affected by the electric resistance rather than the face centered cubic (FCC) lattice structure of Cu and/or Al.

Applicants' argument in page 8, first full paragraph of instant remarks is noted. But, examiner reiterates the response above for the "thin film wiring" vs. "seed layer". Moreover, the argued "seed layer" is merely an intended use in rejected claims. None of the rejected claims has recited thickness of the "seed layer". The argued "extremely formidable challenge" has not been shown by factual evidence how it has been

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overcome by claimed sputtering target composition, X-ray diffraction intensities ratio, and/or resistivity.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. USP 6391163 to Pavate et al is cited to show that the claimed Cu-Al sputtering target (col. 3, lines 20-29), resistivity (col. 1, lines 29-36), grain size (col. 3, lines 1-4), and x-ray diffraction ratio are parameters known to be optimized by known methods.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Examiner Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to S. Ip whose telephone number is (571) 272-1241. The examiner can normally be reached on Monday to Thursday from 5:30 A.M. to 4:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Roy V. King, can be reached on (571)-272-1244.

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

/Sikyin Ip/
Primary Examiner, Art Unit 1793
August 30, 2009